into the Mississippi River, will be seen on the second day, and the Kettle moraines of the ancient Glacial sheet will be visited under the guidance of Prof. Chamberlin. On the third day the twin cities of Minneapolis and St. Paul, centres of the great wheat-growing region of the north-west, will be visited, and glacialists will have an opportunity to see one of the time gauges of the Glacial period, at the Falls of St. Anthony, on the Mississippi River.

During the fourth day the Great Plains of Dakota will be crossed, and toward its close the characteristic Badland topography of the Upper Missouri region will be seen. On the morning of the fifth day the travellers will leave the train at the entrance to the Yellowstone Park, and during the following week will be transported by stages through the Park region, stopping at rustic hotels established near points of special interest. The various geyser basins, the hot lakes and mud volcanoes, the obsidian cliffs, the falls and cañon of the Yellowstone River, the Yellowstone Lake, and other objects of interest, will be successively visited under the guidance of Messrs. Arnold Hague and Jos. P. Iddings.

On the twelfth day the railroad journey will be resumed, and, after crossing the crest of the Rocky Mountains in Montana, a stop of several hours will be made at the famous mining town of Butte, whose mines produced, during 1890, over 26 million dollars worth of copper, silver, and gold.

The morning of the thirteenth day will find the travellers on the edge of the great lava plains of the Snake River. Those especially interested in volcanic phenomena will have an opportunity here of making a side trip across these plains to Shoshone Falls, where the Snake river makes a single leap of over 200 feet, and cuts a narrow gorge 600 feet deep in the andesitic and basaltic lavas. The main party meanwhile will proceed southward into Utah, viewing the desert mountain ranges, the shore-lines of ancient Lake Bonneville, and skirting the shores of its present relic, the Great Salt Lake, will reach Salt Lake City, the Mormon capital, in the afternoon. A halt of three days will be made in Salt Lake City, which will give the travellers an opportunity of seeing the Mormons, the desert scenery around Salt Lake (with bath in the lake), and the magnificent Wahsatch Mountains. The Pleistocene phenomena will be explained by Mr. G. K. Gilbert, and the mountain structure and mining geology by Mr. S. F. Emmons.

On the sixteenth day the railroad journey will be continued across the Wahsatch Mountains into the plateau region of the Colorado River, crossing that stream in the afternoon, and obtaining views of great monoclinal scarps, and groups of laccolitic mountains in the distance.

On the seventeenth day the Rocky Mountain region of Colorado will be entered, through its finest cañon gorges, affording wonderful geological sections. Halts of a few hours each will be made at Glenwood Springs and at the famous mining town of Leadville, which has produced over 150 million dollars worth of silver and lead.

On the eighteenth day the train will descend the great mountain valley of the Arkansas River, between mountain peaks over 14,000 feet high, and through cañon gorges 3000 feet deep, debouching upon the plains through the Royal Gorge at Cañon City, where a remarkable geological section in the "Hogback" ridges will be visited. A short stop will be made at Pueblo, a great centre of smelting works; and Manitou Springs, in a sheltered nook under Pike's Peak, will be reached in the evening.

The nineteenth day will be spent at Manitou Springs, the vicinity of which abounds in objects of geological and mineralogical interest, and those who wish may make the ascent of Pike's Peak (14,200 feet) by rail.

The twentieth day will be spent at Denver, the capital of Colorado, a beautiful city of 130,000 inhabitants, having a view of the whole eastern front of the Rocky Mountains. For those who desire it, a further excursion of ten days or more will be organized under the guidance of J. W. Powell and C. E. Dutton, to the Great Cañons of the Colorado River in Arizona, which they have so fully described in their writings. More detailed visits to the mining districts of Colorado will be directed by S. F. Emmons for those who wish to remain over for that purpose. Those who remain over will receive tickets securing them passage to New York by regular trains when they are ready to start.

The special train will leave Denver on the evening of September 21, crossing the Great Plains of Kansas and Nebraska and the Mississippi Valley, and reaching Chicago on the evening of the 23rd. A day will be given to Chicago, and thence the train will skirt the Great Lakes, Michigan, Huron, and Erie, crossing a portion of Canada, and reaching Niagara Falls on the morning of September 25. Leaving there in the evening, the travellers will descend the beautiful valley of the Hudson River early the following morning, and reach New York before noon of September 26.

NOTES.

THE Delegates of the University Press have informed Prof. Sylvester that they will be prepared to bear the expense of publishing in quarto a complete edition of his mathematical works. We understand that a memorial recommending this course was addressed to the Delegates of the Press, numerously signed by leading mathematicians of the two English Universities, and by eminent members of the French Academy of Sciences.

GEOLOGISTS on this side of the Atlantic will learn with deep regret that Captain Dutton, whose admirable memoirs in the Reports and Monographs of the U.S. Geological Survey are so widely known and valued, has been ordered to take up military duty in Texas—a wide pastoral region where his genius as a geological explorer will find no scope for exercise. As a member of the Corps of Engineers, he has of course always been liable to be taken away to mere routine service of this kind, for which any ordinary officer of his grade would be sufficient. But the authorities have hitherto appreciated his remarkable powers, and have allowed them free exercise, much to their own credit and greatly for the benefit of science. Whether a new martinet has resolved to apply the rigid rules of the service we do not know. But surely there ought to be public spirit enough in the United States to put such pressure on the Engineer Department as will make it reconsider its arrangements. It has only one Captain Dutton, and should be proud of him and make the most of him.

THE Council of the Royal Meteorological Society has decided to arrange for a general dinner, open to all Fellows and their friends, to be held in commemoration of the entrance of the Society on its new premises. The dinner will take place at the Holborn Restaurant on Tuesday, July 7, at 6.30 p.m.

THE Committee appointed by the Hebdomadal Council, Oxford, to consider in what way the University could assist in the establishment of agricultural education, with a special view to the needs of the County Councils, have now submitted their report. By agricultural education the Committee understand instruction in the sciences, or the branches of science, specially applicable to agriculture, employing the latter term with the larger meaning which must have been present to the mind of Dr. Sibthorp when he designated the professorship founded by him the professorship of "Rural Economy." Used in this sense agriculture becomes not merely the science of the cultivation of the soil, but includes the knowledge of its constitution and properties, of its vegetable products, and of the structure, habits, and uses of the domestic animals that are reared upon it; so that the student has evidently much to gain by a knowledge of such subjects as botany, chemistry, animal physiology, and geology. Taking into account the requirements of the County Councils, the Committee think that the efforts of the University should in the first place be directed to the provision of an adequate supply of persons qualified to be lecturers or teachers; and those members who are most familiar with the wants of the counties lay stress upon the importance of University teachers possessing credentials of practical acquaintance with the details of farming and farm-life, which has hitherto been only accidentally—if at all—acquired by such teachers. Other classes of persons whose circumstances the Committee think deserving of consideration are young men who go to Oxford intending to take an ordinary degree, and then, either as landowners or the agents of landowners, to devote themselves to the pursuit and improvement of agriculture; and young men who might go to Oxford with a view to attending such courses of instruction as would be useful to them in agriculture, but without the intention of taking a degree. Dealing with the means already at the command of the University for providing agricultural education, the Committee point out that the professors to whose services resort would most naturally be had are the following: the Sibthorpian Professor of Rural Economy, the Sherardian Professor of Botany, the Waynflete Professor of Chemistry, the Waynflete Professor of Physiology, and the Professor of Experimental Philosophy (Physics). In addition to these University Professors, there are the Lee's Readers in Chemistry and Physics at Christ Church, and the Millard Lecturer in Physics at Trinity College, whose courses would probably be open to agricultural students. The Committee sketch the proper course of study for each class of students, and express the opinion that for the organization and supervision of the studies pertaining to agricultural education some further provision is needed than at present exists. In the Sibthorpian Professorship of Rural Economy, which is now vacant, they recognize a foundation capable of being rendered the centre of agricultural education within the University; and they strongly recommend that the duties and emoluments of the chair should be revised.

THE annual dinner of the Royal Horticultural Society was held on Tuesday evening at the Hôtel Métropole. The chair was taken by Sir Trevor Lawrence, the President. The toast of the evening, "The Royal Horticultural Society," was proposed by Sir James Paget, who spoke of the work in which the Society was engaged as one that ministered to the happiness and welfare of the whole nation. The President responded. The Society is now in a most prosperous condition, and is to be congratulated on the progress it has made under Sir Trevor Lawrence's leadership.

WE print elsewhere a report of the lecture delivered by Lord Rayleigh at the Royal Institution last week in connection with the Faraday Centenary. In commemoration of this anniversary the Royal Institution elected as honorary members a number of foreign men of science, several of whom came to London to be presented with the diploma of membership by the Prince of Wales. As the distinction between the Royal Institution and the Royal Society is not always so well understood in foreign countries as it is in England, the Royal Institution can hardly, perhaps, be congratulated on this "new departure." The following is the list of those on whom the honour was conferred:—Edmond Becquerel, Marcellin Berthelot, Alfred Cornu, E. Mascart, Louis Pasteur, Paris; R. W. Bunsen, Heidelberg; H. L. F. von Helmholtz, A. W. von Hofmann, Rudolph Virchow, Berlin; J. P. Cooke, Cambridge, U.S.; J. Dwight Dana, J. Willard Gibbs, Newhaven, U.S.; Simon Newcomb, Washington, U.S.; Stanislas Cannizzaro, Pietro Tacchini, Rome; Julius Thomsen, Copenhagen; T. R. Thalen, Upsala; Demetri Mendeleef, St. Petersburg; J. C. G. de Marignac, Geneva; J. D. van der Waals, Amsterdam; J. Servais Stas, Brussels.

A COMMISSION has been appointed for the reorganization of the Paris Museum of Natural History, and held its first meeting last week under the presidency of the Minister of Public Instruction. The members are MM. Berthelot, Bardoux, Burdeau, Charles Dupuy, Darboux, Frémy, Chauveau, Milne-Edwards, and Liard.

A *conversazione* will be given by the President of the Institution of Electrical Engineers and Mrs. Crookes in the galleries of the Royal Institute of Painters in Water Colours on Monday evening, July 6.

ON Monday evening, in the House of Commons, Sir H. Roscoe asked the President of the Board of Trade whether he had decided to grant the application of the Committee of the National Institute of Preventive Medicine to become incorporated under the Companies Act, with the omission of the word "limited" in view of the amended proposals which had been placed before him. Sir M. Hicks-Beach replied as follows:—"The amendment of the proposed memorandum of association referred to by the hon. member (by which it is made clear that the grant of the licence now asked for would not in any way imply approval by the Board of Trade of experiments upon living animals, or of any application to the Home Secretary for a licence for that purpose) is, no doubt, an important change in the proposals of the Institute, and will probably meet the objection stated to the deputation which lately waited upon me. There are, however, one or two other points requiring consideration, but I hope shortly to be able to arrive at a decision on the subject."

SIR PRESCOTT GARDINER HEWETT, F.R.S., died on Friday night last at his residence, Chestnut Lodge, Horsham, Sussex. He was born in 1812, and in 1836 was admitted a member of the Royal College of Surgeons, of which he was made President in 1876, in succession to Sir James Paget.

WITH the approval of the President, the Prince of Wales, the Council of the Society of Arts have awarded the Albert Medal to Sir Frederick Abel, K.C.B., "in recognition of the manner in which he has promoted several important classes of the arts and manufactures, by the application of chemical science, and especially by his researches in the manufacture of iron and of steel; and also in acknowledgment of the great services he has rendered to the State in the provision of improved war material, and as chemist to the War Department."

THE Report of the Savilian Professor of Astronomy has been presented to the Board of Visitors of the University Observatory, and we learn from it that the photographic telescope, prepared for taking part in the International Chart of the Heavens, is at length complete. The guiding telescope also is provided with a micrometer sufficient to permit the observation of stars at a considerable distance from the centre of the plate, and the camera end of the telescope is fitted with the apparatus devised by the Astronomer-Royal, and executed by Sir Howard Grubb. The Oxford University Observatory is also provided with two *réseaux*, supplied through Dr. Vogel, of the Potsdam Observatory, and has very recently added to its equipment a measuring machine of great delicacy for the discussion of the plates taken in connection with the international scheme. Altogether the equipment of the Oxford University Observatory appears to be in a very forward state of preparedness, and Prof. Pritchard congratulates himself and the University that this equipment has entailed no unusual appeal to funds, on which there are so many claims, but has been supplied by the bounty of the late Dr. De La Rue, supplemented by strict economy in the management of the Observatory in former years. The astronomical work of the past year has been mainly confined to the discussion of the parallax of stars of the second magnitude, and this work is now on the brink of accomplishment. Seven complete determinations, including that of β Aurigæ, have been made in the year, and but six other stars, the measures of which are complete, await discussion. Prof. Pritchard concludes his Report as usual, by acknowledging the aid he has received from his two assistants. and we are glad to see speaks hopefully of his restoration to complete health.

THE President of the French Republic inspected the meteorological instruments at the summit of the Eiffel Tower on June 13, and afterwards visited the Central Meteorological Office, where he witnessed M. Weyer's experiments on the formation of tornadoes, and also inspected the instruments which there register the indications of the meteorological phenomena at the top of the Eiffel Tower.

THE French Minister of Public Instruction has appointed Dr. Henry de Varigny, assistant in the Museum of Natural History, to report on the University Extension movement, and has commissioned him to study the question in Edinburgh, London, and Oxford.

THE proposed law on Universities is exciting a good deal of discussion in France. Many local jealousies have been aroused in connection with the question. Every town that boasts the possession of a tenth-rate medical school, or of an inadequate scientific faculty, wishes to have a University; and its political representatives have, of course, to do what they can to press its claims. On the other hand, the Government, which would willingly establish five or at most six large Universities, desires if possible, to do away with small and useless institutions.

A SCIENTIFIC expedition which has been organized in Maine is about to spend some time in Labrador. The principal object of the party will be to collect ethnological specimens. They will take with them a phonograph, with which they hope to obtain some materials for the study of the language and songs of the Eskimo.

IN drawing up schemes for the appropriation of the funds placed at their disposal under the Local Taxation Act, 1890, for the promotion of technical instruction, the County Councils certainly ought not to overlook the claims of girls' education. With a view of aiding County Councils in this department of their work, the Committee of the National Association for the Promotion of Technical and Secondary Education has submitted to them a careful outline of subjects which are adapted for girls, and included within the scope of the Technical Instruction Acts. It is suggested that in each county a committee of ladies should be appointed to devise and carry out a scheme for the technical education of girls.

THE *Sussex Daily News* of June 18 records the birth of a sea lion at the Brighton Aquarium.

ON June 18, sixty distinct shocks of earthquake occurred at Serajgunge and Domar, in the Bengal Presidency. Many buildings were slightly damaged. At Serajgunge continuous earthquake shocks had been felt from noon on the preceding day.

ACCORDING to a telegram from Rome, dated June 22, a strong shock of earthquake was felt that morning at Avigliano and at Aquila.

IN his report on the Royal Botanic Gardens, Ceylon, for 1890, Dr. Trimen refers to the kinds of cacao in cultivation there. There is no reason to suppose, he says, that they have under cultivation more than one species of *Theobroma*, but every probability that all the varieties trace their origin to a common wild parent. It would be interesting to know which of the two fairly well-marked races recognized in Ceylon is the nearer to this original type, and the facts could probably be ascertained in Central America. The names "Criollo" and "Forastero" applied to them simply mean "wild and foreign," and seem to have had their origin in Trinidad, but it is doubtful if the former was ever really a native plant there. It was, however, the sort at one time exclusively grown in that island, where, having died out, its place was supplied by the "foreign" sort, no doubt obtained from the mainland. As seen in Ceylon, the "Criollo" (called also there "Caracas" and "Old Ceylon Red Cacao") presents very little variety, but the "Forastero" shows a remarkable range in form, size, and colour of pod and seed. No doubt crossing goes on freely in plantations even between the two main races, and it is well known in Ceylon that seed from a single tree gives a very varied progeny; but a curious remark was recently made to Dr. Trimen by a large grower, who has great opportunities for observation, that the "Forastero" varieties, which he chiefly cultivates, appear to be gradually changing their characters and becoming more like the "Old Ceylon Red," the seeds losing their dark colour on section, and becoming pale or nearly white.

IN *Himmel und Erde* for June, Prof. G. Hellmann, of Berlin, begins a series of articles entitled "Meteorologische Volksbücher," being an inquiry into popular and typical meteorological works from the earliest times, and into the nature of their contents. The works to be discussed are more particularly those of Germany, although foreign literature will also find subsidiary consideration. Two works are referred to in the present article:—(1) "The Book of Nature," by Konrad von Megenberg, which is the oldest natural history in the German language, and was written about the year 1350—nearly a century before the invention of printing. It was first printed in 1475, and went through many subsequent editions. Much attention and original thought was given to meteorological subjects, and the author divided the wind-rose into 12 points; but the work is to some extent based upon a still unpublished Latin manuscript by Thomas Cantimpratensis, "Liber de natura rerum," which was written before the middle of the 13th century. (2) "Elucidarius." The author of this work is not known with certainty, but is supposed to be Jakob Köbel. This remarkable work was first published in German, in the year 1470, and was much sought for in most European countries in the 15th and 16th centuries. It deals with a variety of subjects, including meteorology and geography, and many editions were published in various countries. Dr. Hellmann gives copious extracts from the works; and historical research being a subject in which he carries great authority, his treatment of it will be found both interesting and instructive.

MESSRS. VIEWEG AND SON, of Brunswick, intend publishing a German translation of Mr. Denning's new book, "Telescopic Work for Starlight Evenings."

A WORK entitled "Synopsis der Höheren Mathematik," by J. G. Hagen, Director of the Georgetown College Observatory, Washington, D.C., is to be published by Felix L. Dames, Berlin. The work is the result of labour carried on continuously during twenty years, and is intended to present a general view of the higher mathematics. It will consist of four volumes, the first of which will be issued early in August.

A VALUABLE paper on gum-trees, by Mr. D. McAlpine and Mr. J. R. Remfry, has been reprinted from the Transactions of the Royal Society of Victoria for 1890. There are several illustrative plates, the drawings being principally reproductions of photographs taken by Mr. Remfry. These drawings show that the transverse section of the leaf-stalk of a Eucalypt may reveal a pattern useful in the determination of species.

MESSRS. GEORGE PHILIP AND SON have issued the first number of the *Blue Peter*, a monthly sailing list and review. It is intended that the new journal shall provide ample information for persons who are about to set out by any one of the principal ocean routes. There will also be articles which may serve to remind ships' officers that "there is substantial profit to be derived from a scientific training."

THE third volume of the *Photographic Recorder* is completed by the June number. The volume is admirably illustrated, and contains a valuable record of all that has been done in connection with photography during the past year.

MESSRS. W. F. BROWN AND CO., Montreal, are printing for the Government of Canada "Contributions to Canadian Palæontology," by J. F. Whiteaves, Palæontologist and Zoologist to the Canadian Survey. Part iii. of vol. i. has just been issued. It deals with the fossils of the Devonian rocks of the Mackenzie River basin.

A NOTE by M. Moissan upon the action of fluorine upon phosphorus trifluoride is communicated to the current number of the *Bulletin de la Société Chimique*. A short time ago M. Moissan described a mode of preparing the gaseous trifluoride of phosphorus. The method consisted in gradually adding phosphorus tribromide to warm zinc fluoride, washing the gas first through water, in which it is sparingly soluble, and afterwards drying by means of pumice moistened with sulphuric acid and collecting over mercury. In order to study the action of free fluorine gas upon phosphorus trifluoride as thus prepared, a special piece of apparatus was devised, constructed entirely of platinum and fluor-spar. It consisted of a platinum tube fifteen centimetres long, closed at each end by transparent plates of fluor-spar, through which the phenomena attending the reaction could be observed. The platinum tube was fitted with three side tubes, two of which were placed opposite each other about the centre of the tube, and served for the admission of the fluorine and phosphorus trifluoride respectively; the third or exit tube was of somewhat wider diameter than the entrance tubes, and was bent so as to serve as a delivery tube over a mercury trough. The whole apparatus was first filled with phosphorus trifluoride, and then the fluorine entrance tube was connected with M. Moissan's now well-known apparatus for the preparation of fluorine. As soon as the fluorine came in contact with the phosphorus trifluoride a yellow flame was produced and intense action occurred, with the production of phosphorus pentafluoride. The flame appears to be a comparatively low temperature one. On collecting the gaseous product over mercury, it was found to consist very largely of phosphorus pentafluoride, readily capable of absorption by water, and a small proportion of unaltered trifluoride which could be absorbed by potash. This reaction of fluorine with trifluoride of phosphorus is thus analogous to the conversion of phosphorus trichloride into pentachloride by the action of gaseous chlorine. An interesting reaction has also been observed by M. Moissan to occur between spongy platinum and these gaseous fluorides of phosphorus. When pentafluoride of phosphorus was passed over spongy platinum gently heated in a platinum tube, a partial decomposition was found to occur, and the issuing gas was admixed with trifluoride, and also with free fluorine. The existence of the latter in the free state was abundantly shown by its action upon crystallized silicon. When, however, the temperature of the tube was raised to dull redness, a volatile compound, containing platinum, phosphorus, and fluorine, was obtained, which was carried forward by the gaseous current and deposited in crystals in the cooler portion of the tube. When this crystalline substance is heated, it melts to a viscous liquid, which decomposes at a bright red heat. Analyses show that it is a fluophosphide of platinum, probably of the composition $2PF_3.PtF_4$, analogous to one of the similar chlorine compounds discovered by Schutzenberger, $2PCl_3.PtCl_4$. M. Moissan expresses the hope that by employing some such dissociating compound as this a purely chemical isolation of fluorine may some day be achieved.

THE additions to the Zoological Society's Gardens during the past week include three Stoats (*Mustela erminea*), European, presented by Mr. J. S. B. Borough; an Ocelot (*Felis pardalis* ♂) from South America, a Red-tailed Buzzard (*Buteo borealis*), a Laughing Gull (*Larus atricilla*) from North America, presented by Sir Henry Blake, K.C.M.G.; a Tawny Eagle (*Aquila nævioides*) from Africa, presented by Mr. K. G. Hay; a Blue-fronted Amazon (*Chrysotis æstiva*) from South America, presented by Mrs. A. G. Mussey; a Grey-breasted Parrakeet (*Bolborhynchus monachus*) from Monte Video, presented by Mr. J. R. George; four Common Quails (*Coturnix communis*), British, presented by Mr. J. C. Gie; two Chinese Geese (*Anser cygnoides*) from China, presented by Captain Creaghe; an Egyptian Gazelle (*Gazella dorcas*) from Egypt, two Abyssinian Guinea Fowls (*Numida ptilorhyncha*) from Abyssinia, two Blossom-headed Parrakeets (*Palæornis cyanocephalus*) from India, a Meyer's Parrot (*Pœocephalus meyeri*) from East Africa, three Tibetan Crossoptilons (*Crossoptilon tibetanum*) from Tibet, a Temminck's Tragopan (*Ceriornis temmincki* ♂) from China, deposited; a Vinaceous Amazon (*Chrysotis vinacea*), from Brazil, purchased; two Heloderms (*Heloderma suspectum*) from Arizona, U.S.A., received in exchange; a Burrhel Wild Sheep (*Ovis burrhel*), two Mule Deer (*Cariacus macrotis* ♂ ♀), a Bennett's Wallaby (*Halmaturus bennetti* ♂), two Impeyan Pheasants (*Lophophorus impeyanus*), bred in the Gardens.

OUR ASTRONOMICAL COLUMN.

TRANSIT OF MERCURY.—The Government Astronomer at Sydney (Mr. C. Todd, C.M.G.) writes as follows regarding the transit of Mercury:—Good observations of the transit of Mercury were secured at the Observatory, on Sunday the 10th. At the ingress the conditions were extremely favourable, the sun's limb and the planet when projected on the sun's disk being exceedingly well and sharply defined, but at the egress the sun's limb was boiling and the planet was somewhat woolly, rendering it difficult to fix the exact time of internal contact. I observed with the 8-inch equatorial refractor, assisted by Mr. Cooke; and Mr. Sells observed with an 8-inch reflector.

The observations were as follow:—

Observer—C. Todd. Power 125.

INGRESS.—*External Contact.*	Times. h.	m.	s.
A. About one-third on	9	10	11
Internal Contact.			
B. Contact tangential	9	13	6·5
C. Black drop still clinging to limb	9	13	22·0
D. Rupture of black drop; planet clear of limb	9	13	49·5
EGRESS—Power 80. *Internal Contact.*			
E. Formation of black drop touching limb ...	2	0	14·1
F. Tangential contact	2	0	43·8
External Contact.			
Indentation still visible	2	4	14·8
,, ,, barely noticeable	2	4	25·8
Sun's limb complete	2	4	31·8

Observer—Mr. Sells.

INGRESS.—*Internal Contact.*	h.	m.	s.
a. Planet nearly on disk, but not quite ...	9	12	51·3
b. True contact, momentarily seen	9	13	13·2
c. Planet pear-shaped; point of pear touching sun's limb	9	13	50·7
EGRESS.—*Internal Contact.*			
a. Pear-shaped contact	2	0	34·6
b. True contact	2	1	28·6
External Contact.			
c. Last seen; or sun's limb judged to be complete...	2	4	48·6

OBSERVATIONS OF TELLURIC LINES.—The May number of the *Memorie della Società degli Spettroscopisti Italiani* contains a paper by G. B. Rizzo on the telluric lines in the solar spectrum. Signor Rizzo has compared the intensities of the lines A, B, and α at Bosco Nero and on the Rocciamelone Mountain. In order to express the variation in the mass of air (ϵ) traversed, calculations have been made of the values at the different altitudes of P sec ζ, where P is the atmospheric pressure, and ζ is the sun's zenith distance. The following is a comparison of the